Claims What is claimed is: 1. A human DNase I hyperactive variant. A variant of claim 1 that has DNA-hydrolytic activity that is at least 50% greater than that of native human DNase I as determined in a linear DNA digestion assay. A variant of claim 1 that has DNA-hydrolytic activity that is at least 2-fold greater than that of native human DNase I as determined in a linear DNA digestion assay. A variant of claim 1 comprising an amino acid sequence having at 10 least 90% identity with the amino acid sequence of native human DNase I shown in Figure 1. A variant of claim 1 comprising an amino acid sequence having at least 95% identity with the amino acid sequence of native human DNase I shown in Figure 1. 15 A human DNase I hyperactive variant having an amino acid sequence that differs from the amino acid sequence shown in Figure 1 by the substitution of one amino acid for another at only a single position within the Figure 1 sequence. 7. A variant of claim 6 wherein the amino acid substitution is at one 20 of the following positions within the Figure 1 sequence: Gln9, Glu13, Thr14, His44, Asn74, Ser75, and Thr205. 8. A human DNase I hyperactive variant having an amino acid sequence that differs from the amino acid sequence shown in Figure 1 by the substitution of one amino acid for another at two or more positions within the Figure 1 sequence. 9. A variant of claim 8 wherein at least one of the amino acid substitutions is made at one of the following positions within the Figure 1 sequence: Gln9, Glu13, Thr14, His44, Asn74, Ser75, and Thr205. 10. An isolated nucleic acid encoding a human DNase I hyperactive 30 variant. 11. The nucleic acid of claim 10 comprising a nucleotide sequence that encodes an amino acid sequence having at least 90% identity with the amino acid sequence of native human DNase shown in Figure 1. 12. The nucleic acid of claim 10 comprising a nucleotide sequence that 35 encodes an amino acid sequence having at least 95% identity with the amino acid sequence of native human DNase shown in Figure 1. 13. The nucleic acid of claim 10 comprising a nucleotide sequence that encodes an amino acid sequence that differs from the amino acid sequence shown in Figure 1 by the substitution of one amino acid for another at only a single position within the Figure 1 sequence. -20-

- 14. The nucleic acid of claim 10 comprising a nucleotide sequence that encodes an amino acid sequence that differs from the amino acid sequence shown in Figure 1 by the substitution of one amino acid for another at two or more positions within the Figure 1 sequence.
- 15. A method for the treatment of a patient having a pulmonary disease or disorder comprising administering to the patient a therapeutically effective amount of a human DNase I hyperactive variant.
- 16. The method of claim 15 wherein the disease or disorder is cystic fibrosis.
- 17. A method for the treatment of a patient having systemic lupus erythematosus comprising administering to the patient a therapeutically effective amount of a human DNase I hyperactive variant.

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- 18. A pharmaceutical composition comprising a human DNase I hyperactive variant and optionally a pharmaceutically acceptable excipient.
- 19. The composition of claim 18 wherein the composition is in liquid form.
 - 20. The composition of claim 18 wherein the composition is in powder form.